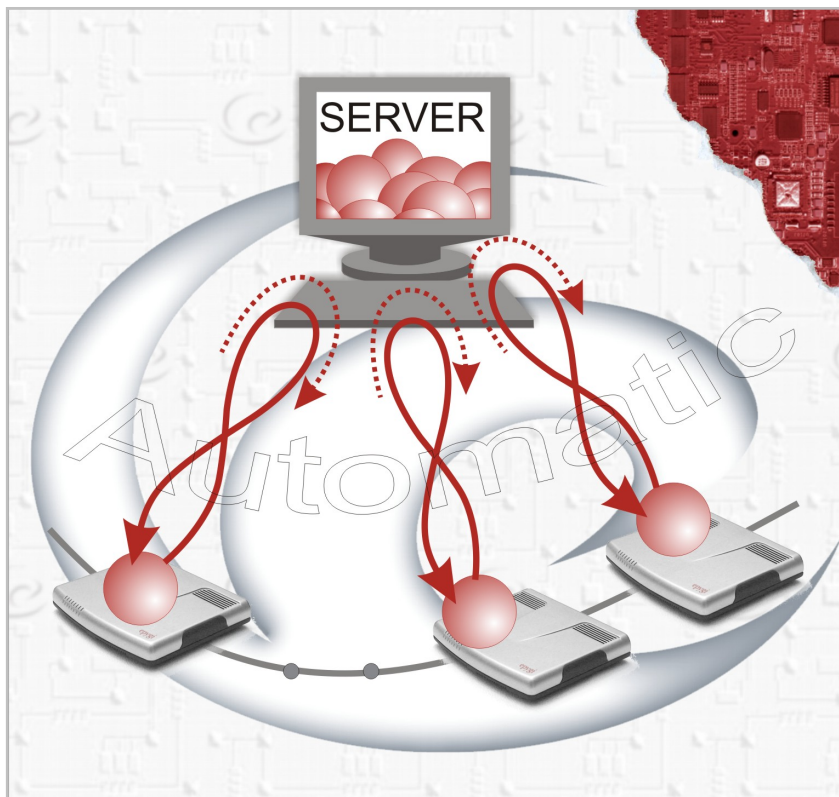

Automatic Firmware Update



Revision: 1.1

Abstract: This document describes the configuration and use of the Automatic Firmware Update service of the Quadro.

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Document Revision History

Revision	Date	Revision	Applicable to SW	Applicable to models
1.0	13-Sep-06	Initial release	4.1.x	All Quadro models
1.1	24-Jan-07	Edits	4.1.x	All Quadro models

1 Introduction

This document describes the configuration and use of the Automatic Firmware Update service of the Quadro.

2 Requirements and Preparations

- The Quadro is connected to the network and all network settings are properly configured.
- SOHO-SW 4.1.x is running on the Quadro.

3 Conventions Used in This Document

The following conventions are used in this document:

- The word 'server' implies a TFTP, FTP, HTTP or HTTPS server. Whether the server is TFTP, FTP, HTTP or HTTPS it is indicated by the **Update Method** specified on the **System→Configuration Management→Automatic Firmware Update** page (see [Service Activation on the Quadro](#)).
 - File and folder names are *italicized*.
 - File contents appear in `this style`.
 - The names of Quadro GUI pages and settings are highlighted in **bold**.
 - The numerical values used as examples are in blue.
- Please note:** The numerical values used in this document are for the purpose of an example only. For a correct functionality, they must be changed to appropriate values.

The screenshots in this document were taken from SW 4.1.13.

4 Functional Description

The **Automatic Firmware Update** service allows the administrator to configure Quadros to regularly check a specified server for new firmware and, if available, either to notify or update the firmware immediately.

To utilize this service, the administrator should first create an *auto-update* folder in the root directory of a company server. The *auto-update* folder, or a firmware directory, will store the needed firmware files and some supplementary text files. See [Create a Firmware Directory](#).

After the firmware directory is created, the next step will be to activate and configure the service on the Quadro. See [Service Activation on the Quadro](#). Once configured, the service will require minor maintenance to keep the Quadro's firmware up-to-date. See [Updating the auto-update Directory](#).

5 Create a Firmware Directory

The firmware directory will contain Quadro firmware files and one or more text files created by the administrator. The text files are used for networks deploying different Quadro models (i.e. Quadro2x, Quadro4x, etc.). They will be used to notify a specific Quadro device(s) of which firmware file in the directory to download.

The firmware directory should be created in the root directory of the server (TFTP, FTP, HTTP or HTTPS) and must be named *auto-update* (lower case and with a hyphen).

5.1 Create Firmware Directory Files

The firmware directory can contain files of the following three types:

1. Files with a *redirect* extension. These are used to specify a server to which a Quadro with a specified MAC address should be redirected. A MAC address is specified in the file name. See [Redirect Files](#).
2. Files with a *conf* extension. These are used to specify a firmware file that Quadros of a specific model or MAC address should download. Depending on the file name, there can be three types of *conf* files. See [Conf Files](#).
3. Files with a *bin* extension. These are Quadro firmware files available at Epygi's Technical Support WEB portal.

The *redirect* and *conf* files are text files. They can be created and edited with any text editor. When creating files of these types, ensure that the file is saved with a *redirect* or *conf* extension.

The content and the purpose of each file type are described below.

5.1.1 Redirect Files

File name format:

Quadro_MAC_Address.redirect. For example: *00f3b0029500.redirect*.

Content:

```
redirectServerName=192.168.0.83
redirectServerPort=68
redirectMethod=tftp
```

Content Description:

- `redirectServerName` is the IP address or the hostname of the server to which the Quadro is redirected.
- `redirectServerPort` is the listening port of the redirect server.
- `redirectMethod` is the connection method that will be used to download the firmware file after the Quadro connects to the redirect server. It can be *tftp*, *ftp*, *http* or *https*.

Purpose:

The file is used to redirect a Quadro with the specified MAC address to another server.

5.1.2 Conf Files

File name format: The three possible file name formats for a *conf* file are the following:

- *Quadro_MAC.conf*. For example *00f3b0029500.conf*, or
- *Quadro_Model.conf*. For example *quadro4x-16x.conf*, or
- *global.conf*

Content:

```
firmwareVersion=4.1.1  
firmware=SW-SOHO-0401-0100.bin
```

Content Description:

- `firmwareVersion` is the version of the firmware.
- `firmware` is the file name of a firmware file. It must match the file name of the corresponding *bin* file placed in the *auto-update* directory.

Purpose:

The *conf* files indicate the firmware that a specified Quadro should download.

- ***Quadro_MAC.conf*** This file specifies the firmware that the Quadro with a specified MAC address will download when it connects to the server.

Usage Example: If several Quadro IP-PBXs and one QuadroE1/T1 are set up on the network, specify the firmware file for Quadro IP-PBXs in the *global.conf* file (explained below) and the firmware file for the QuadroE1/T1 in the *Quadro_MAC.conf* where the *Quadro_MAC* is the QuadroE1/T1's MAC address.

- ***Quadro_Model.conf*** This file specifies the firmware that the Quadros of the specified model will download when they connect to the server. The *Quadro_Model* can be any of the following predefined words:
 - *quadro2x.conf* for Quadro2x models.
 - *quadro4x-16x.conf* for Quadro4x and Quadro16x models and their flavours (Quadro4xi, Quadro16xi, etc.).
 - *quadrofxogw.conf* for QuadroFXO models.
 - *quadroisdngw.conf* for QuadroISDN models.
 - *quadrogateway.conf* for QuadroE1/T1 models.
 - *quadrocs.conf* for QuadroCS (conference server) models.

Usage Example: If several Quadro IP-PBXs and several QuadroE1/T1s are set up on the network, create a *global.config* file to indicate the firmware for the Quadro IP-PBXs and a *quadrogateway.conf* file to indicate the firmware for QuadroE1/T1s. It is also possible to create a *global.config* file to indicate the firmware for QuadroE1/T1s and a *quadro4x-16x.conf* (or *quadro2x.conf*) file to indicate the firmware for Quadro IP-PBXs.

- ***global.conf*** This file specifies the firmware that the Quadro devices that have no *conf* files with their MAC address or model should download when they connect to the server.

Usage Example: This file is usually used to indicate the firmware of the main model used on the network. For example, if the majority of the Quadro devices on the network are of the Quadro4x model and there are a few Quadro2x's, then it is better to have *global.conf* indicate the firmware for *Quadro4x* devices and create *quadro2x.conf* to indicate the firmware for Quadro2x's.

5.2 Search for the Required *conf* File

When a Quadro connects to the server, it searches for a necessary firmware file. The search is completed strictly in the following order:

1. The Quadro will try to find a *.redirect* file with its MAC address. If the file is found, the Quadro is redirected to the specified server and the following steps are skipped. Otherwise step 2 follows.
2. The Quadro will try to find a *.conf* file with its MAC address. If the file is found, the Quadro checks the firmware version (see below). Otherwise step 3 follows.
3. The Quadro will try to find a *.conf* with its model. If the file is found, the Quadro checks the firmware version. Otherwise step 4 follows.
4. The Quadro will try to find the *global.conf*. If the file is found, the Quadro checks the firmware version. Otherwise it disconnects from the server.

For example, a Quadro4x with the MAC address of *00f3b0029500* will download *image2.bin* when it connects to an *auto-update* directory containing the files listed in [Table 1](#).

Table 1

File name	File content
00f3b0029500.conf	firmwareVersion=4.1.3 firmware=image2.bin
quadro4x-16x.conf	firmwareVersion=4.1.3 firmware=image1.bin
global.conf	firmwareVersion=4.1.3 firmware=image.bin
Firmware files	
image.bin image1.bin image2.bin	

5.3 Firmware Version Checking

After the Quadro finds the appropriate *conf* file, it executes firmware version checking. This may be a one-step or two-step procedure depending on whether the Quadro is configured to *check-and-notify* or to *check-and-update* as described below:

- In case of *check-and-notify*, the Quadro compares the current firmware version with the firmware version indicated in the *conf* file. If the version in the *conf* file is higher, the Quadro will generate a corresponding event. See [Choosing the Notification Method](#). The same event will also be generated if the version in the *conf* file is lower and the **Allow Automatic Firmware Update with older version** checkbox is selected on the **Automatic Firmware Update** page (see [Service Activation on the Quadro](#)).
- In case of *check-and-update*, the Quadro compares the current firmware version with the firmware version indicated in the *conf* file. If the version in the *conf* file is higher (or lower and the **Allow Automatic Firmware Update with older version** checkbox is selected), it downloads the firmware file. After the download is complete, the Quadro will compare the current firmware version with the firmware version indicated in the downloaded *bin* file. The firmware update starts only if these two versions are different, otherwise the Quadro reboots without updating the firmware.

5.4 Updating the *auto-update* Directory

Once the *auto-update* appropriate directory for your Quadro network is created, a few minor modifications will be required each time new firmware is placed in it.

After placing new firmware in the *auto-update* folder, follow these steps:

1. Change the firmware version in the appropriate *conf* files.
2. Update the firmware name in the appropriate *conf* files.

6 Service Activation on the Quadro

The following step-by-step instructions describe how to activate the **Automatic Firmware Update** service on the Quadro:

1. Log into the Quadro as the administrator.
2. Choose **Configuration Management** from the **System** menu.
3. On the **Configuration Management** page, click on the **Automatic Firmware Update** link (see Figure 1).

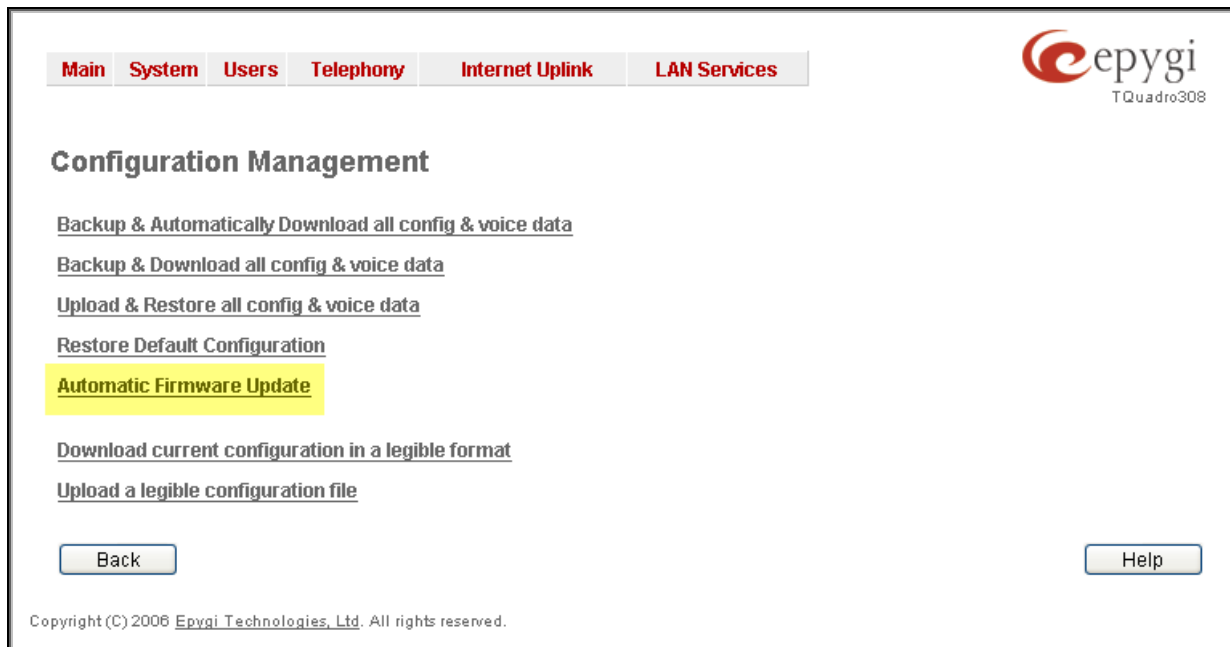


Figure 1 Configuration Management Page

4. On the **Automatic Firmware Update** page (see Figure 2):
 - Select the **Enable Automatically Firmware Update** checkbox to activate the service.
 - Select the **Allow Automatic Firmware Update with older version (downgrade)** checkbox to enable the Quadro to install the firmware of older versions. If the checkbox is clear, the Quadro will update the configuration only with firmware of higher versions.
 - Select the Server Configuration type. The following options are available:
 - a) **Assign automatically via DHCP.** Select this option if the Quadro obtains the TFTP configuration parameters automatically from the DHCP server.
 - b) **Assign manually.** Select this option to manually configure the server parameters:
 - **Server Name** - the server's IP address or hostname.
 - **Server Port** - the server's listening port.
 - **Update Method** - the server's type.

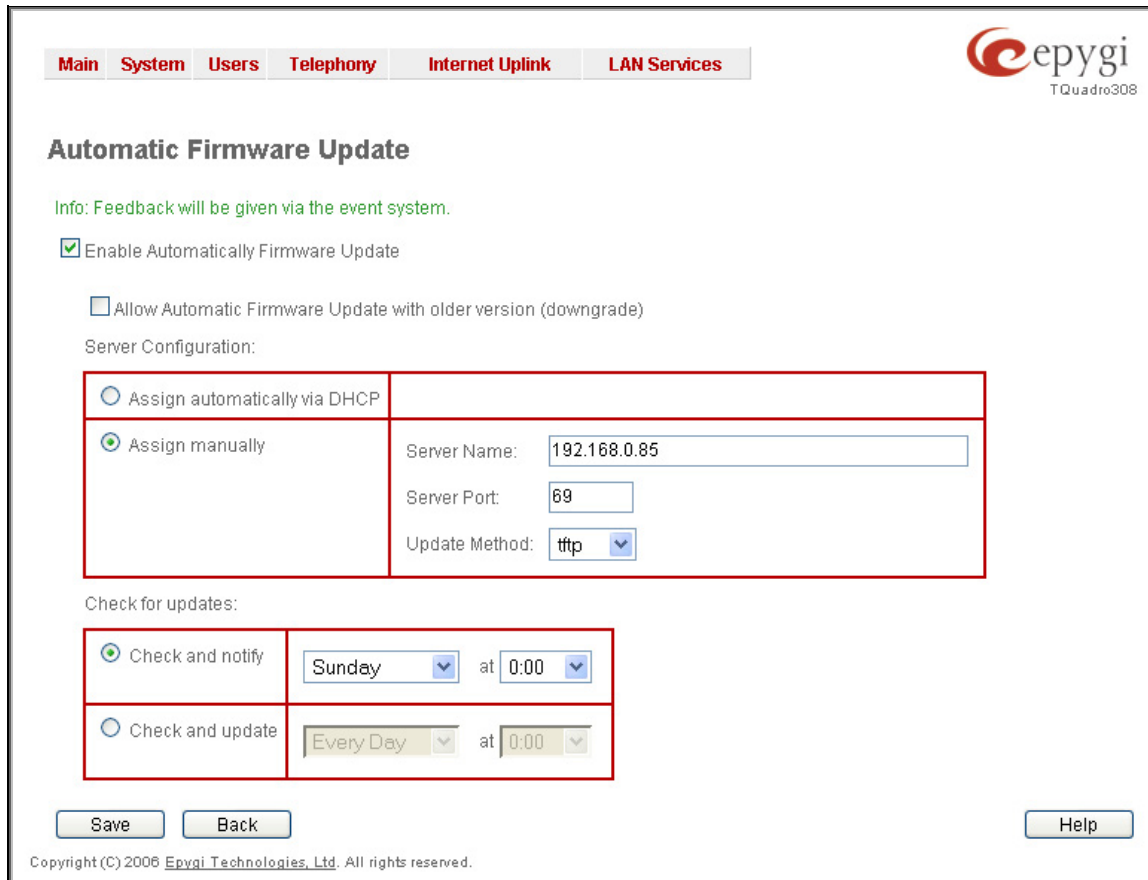


Figure 2 Automatic Firmware Update Page

- Select an action the Quadro should execute when an update is detected on the server and choose a day and time for a regular check. To set the time, use the drop-down lists next to the desired option. The following options are available:
 - a) **Check and notify.** This option configures the Quadro to automatically check for a new update and, if available, notify by generating an event. You may choose the notification method (by email, flashing LED, etc.) from the **Event Settings** page. See [Choosing the Notification Method](#).
 - b) **Check and update.** This option configures the Quadro to automatically check for a new update and, if available, update the firmware immediately.
- 5. Click the **Save** button to submit the changes.

6.1 Choosing the Notification Method

When the Quadro executes an action related to the Automatic Firmware Update (checks for a new update, updates the firmware, etc.), it generates events. These are **update** and **update failure** events generated by the System application (see Figure 3).

By default, almost all events are notified by displaying the **Please check your pending events** link on all WEB pages of the Quadro and adding a record to the **System Event** table. To choose another notification method, follow these steps:

1. Choose **Events** from the **System** menu and click on the **Event Settings** tab.
2. On the **Event Settings** page, select the checkboxes associated with events named **update** and **update failure** (the System application) and click **Edit** (see Figure 3).

Event Settings

System Events [Event Settings](#)

[Edit](#) [Select all](#) [Inverse Selection](#)

	Application	Name	Priority	Description	Action
<input type="checkbox"/>	SYSTEM	reboot	3	the device has been successfully started after reboot	Display notification
<input type="checkbox"/>	SYSTEM	ip routing	3	Could not add ip route	Display notification
<input type="checkbox"/>	SYSTEM	dynaris	1	Dynaris Event	Display notification
<input checked="" type="checkbox"/>	SYSTEM	update	1	Automatic Software Update	Display notification
<input checked="" type="checkbox"/>	SYSTEM	update failure	2	Automatic Software Update	Display notification
<input type="checkbox"/>	SLAVE	registration	3	Slave Registration Event	Display notification
<input type="checkbox"/>	SYSTEM	backup failure	2	Automatic Configuration Backup	Display notification
<input type="checkbox"/>	SIPTRUNKCLIENT	registration	3	SIP Trunk Client Registration Event	Display notification

[Back](#) [Help](#)

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Figure 3 Event Settings page

- On the **Edit Event Settings** page, select your desired notification method (see Figure 4). For more information on event notification methods, see Manual II: Administrator's Guide for the corresponding device and release.
- Click the **Save** button to submit the changes.

Edit Event Settings

Application: Multiple

Name: Multiple

Description: Multiple

Actions:

- ☒ Display notification
- ☐ Flash LED
- ☒ Send mail
- ☐ Send SNMP trap
- ☐ Send SMS

[Save](#) [Back](#) [Help](#)

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Figure 4 Edit Event Settings page